

PATENT CLAIMS

1. Solid insulator for gas-insulated encapsulated high voltage installations with
5 an insulator body which is supporting at least one conductor that is provided for carrying high voltage and that is arranged in an outer enclosure, wherein said insulator body comprises a fiber-reinforced polymer.
2. Solid insulator as claimed in claim 1,
10 wherein said insulator body comprises a fiber-reinforced epoxy material.
3. Solid insulator as claimed in claim 1 or 2,
wherein said insulator body comprises non-conductive organic fibers and /
or non-conductive inorganic fibers.
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4. Solid insulator as claimed in claim 1, 2 or 3,
wherein said insulator body comprises conductive fibers for field grading
purposes.
- 20 5. Solid insulator as claimed in the preceding claims, wherein the orientation of the fibers in the insulator body is such that quasi-isotropic mechanical properties of the insulator body are achieved.
6. Solid insulator as claimed in claim 5,
25 wherein the orientation of the fibers in the insulator body is in radial and hoop direction and the fiber fabrics are arranged in different layers.
7. Solid insulator as claimed in claim 5 or 6,
wherein the orientation of the fibers in the insulator body is biaxial and the
30 fiber fabrics are arranged in different layers; the stacked layers being rotated by a given degree.

8. Solid insulator as claimed in claim 5, 6, or 7,
wherein the orientation of the fibers in the insulator body is unidirectional
and the fiber fabrics are arranged in different layers; the stacked layers be-
ing rotated by a given degree.

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9. Solid insulator as claimed in claims 5 - 8,
wherein the fiber backbone of the insulator body comprises a preform with
stacked layers of radial and hoop, biaxial or unidirectional fibers, where the
layers are physically or chemically bonded.

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10. Solid insulator as claimed in one of the claims 5 - 8,
wherein the fiber backbone of the insulator body comprises a preform,
which comprises a continuous radial and hoop spiral-like fiber layer.

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11. Solid insulator as claimed in one of the claims 5 - 8,
wherein the fiber backbone in the insulator body comprises a preform,
which comprises a three-dimensional woven fiber structure.

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12. Method for manufacturing a solid insulator for gas-insulated encapsulated
high voltage installations with an insulator body which is supporting at least
one central conductor that is provided for carrying high voltage and that is
arranged in an outer enclosure, including the steps of:

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arranging the fibers in a mold,
closing the mold and infusing the polymeric matrix into the mold by using
low pressure and / or vacuum,
curing the polymeric matrix in the mold,
removing the insulator body from the mold.

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13. Method for manufacturing a solid insulator as claimed in claim 12,
wherein the fibers are inserted into the mold as a preform.